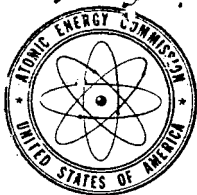


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UNITED STATES  
ATOMIC ENERGY COMMISSION

WASHINGTON, D.C. 20545

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DEC 14 1973

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\*DOE REVIEW COMPLETED, DEC 2001\*

Honorable William E. Colby  
Director, Central Intelligence Agency

Dear Mr. Colby:

As you are no doubt aware, there has been, in the past several months, strong interest in the Executive offices and here at the U. S. Atomic Energy Commission (AEC) in the capability of various nations to enrich uranium. This interest is occasioned in part by the large increase in nuclear power generating capacity expected to be installed over the next 20 to 30 years and by the enhanced possibility of the proliferation of nuclear weapons.

The AEC in carrying out the U. S. Government's policies for the provision of enriching services is in the midst of many difficult decisions regarding both U. S. industry and foreign entities. It is requested, therefore, that USIB undertake an analytical study of the existing and potential uranium enrichment capabilities worldwide.

Such a study would contribute equally to our understanding of the world energy situation and its impact on national energy issues in the U. S. and the potentials for further proliferation of nuclear weapons. Taken together these areas comprise major national security issues and concerns both now and for the foreseeable future. At the same time such a study would illuminate those areas where information is inadequate or unavailable for analysis and therefore useful in preparing requirements and ordering priorities for collection. On the whole, such a study would stimulate the Intelligence Community in this area of increased importance to national policy.

It should be noted that the worldwide (non-communist countries) demand for enriched uranium services is expected to exceed \$50 billion in value by the close of this century. The demand for enriched uranium services for U. S. nuclear power reactors is also expected to exceed \$50 billion in value in the same period.

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Honorable William E. Colby

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DEC 14 1973

The investment to be made by the U. S. Government and industry over the next decade to meet the expected U. S. enrichment demands as well as to capture a significant fraction of the worldwide market will total in the many billions of dollars.

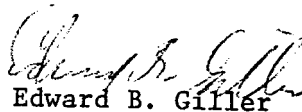
The unexpected appearance of foreign enrichment capabilities that can undercut U. S. foreign sales may not only play havoc with our balance of payments by limiting exports over the next decades, but could leave the U. S. with expensive and unused, if not obsolete, enrichment capacity. Such difficulties might arise for the U. S. from either the development of separative techniques which are unique and significantly less costly than those known to the U. S., or by a decision by say the Soviet Union to be competitive in the world market and undercutting U. S. prices. (Possibly to redress potential balance of payments deficits with the West.)

As important an issue for U. S. concern, as the economic problem, is the safeguarding of the enriched uranium products. It may be timely to consider how existing international safeguards may have to be adjusted in light of future trends in the proliferation of enrichment services and what additional national means might be brought to bear to assure that these materials are not employed in the fabrication of nuclear weapons.

In requesting this National Intelligence Memorandum, the AEC hopes to expedite its writing by direct and substantial contributions. Accordingly, an outline of such a study is enclosed to provide a point of departure for subsequent discussion.

If agreeable to you and the members of the Board, a tentative time frame for a first draft might be March 1974.

Sincerely,

  
Edward B. Giller

AEC Representative to the  
United States Intelligence Board  
Assistant General Manager  
for National Security

Enclosure:  
Study Outline, S/NSI

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PROPOSED STUDY OUTLINE

WORLDWIDE URANIUM ENRICHMENT CAPABILITIES

SCOPE NOTE

This paper identifies and assesses the existing and potential worldwide capacity for the enrichment of uranium. It identifies where commercial uranium ore exists, and the methods employed for uranium extraction and enrichment. Based upon existing forecasts of future worldwide use of nuclear power reactors, estimates should be made of those nations that are likely to embark upon uranium enrichment services for either internal use or export and/or the proliferation of nuclear weapons.

This paper also raises those issues regarding the U. S. ability to monitor the flow and use of the increased amounts of enriched uranium expected to be available worldwide over the next few decades.

- I. Raw Materials (worldwide) Distribution by Country
  - A. Estimated ore supply
  - B. Technologies being employed to extract  $U_3O_8$
  - C. R&D on new extraction technology
  - D. Investments in ore extraction (annual production)
  - E. Export policies
- II. Countries Pursuing R&D Applicable to Uranium Isotope Separation
  - A. Process description
  - B. R&D expenditures
  - C. Primary researchers (institutions and government support)
  - D. Potential technical and economic feasibility
- III. Countries Pursuing Enrichment Demonstration or Pilot Plant Construction
  - A. Process description
  - B. Cost of facility; capacity
  - C. Sponsorship; ownership (government support)
  - D. Technical and economic feasibility

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Proposed Study Outline

- 2 -

IV. Existing Uranium Enrichment Capacities

- A. Process description and capacities
- B. Ownership (government support)
- C. Customers and supply quantities and qualities
- D. Existing contracts and policies for enrichment services

V. Foreign National Policies and Goals for Uranium Enrichment Services

- A. Inter and Intra Government-industry relationships
- B. Military requirements vs. civilian requirements
- C. Adequacy of existing treaties and safeguard procedures

VI. Adequacy of National Means for Monitoring Worldwide Use of Enriched Uranium

- A. Possibilities for collection
- B. Preferred collection methods
- C. Collection requirements

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